

**Notice of Allowability**

Application No.

10/538,401

Examiner

Jennifer Doan

Applicant(s)

AZAMI ET AL.

Art Unit

2874

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to application filed November 14, 2005.
2. ☒ The allowed claim(s) is/are 1-12.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some\* c) ☐ None of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),  
Paper No./Mail Date 060905
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_.
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_.



**JENNIFER DOAN  
PRIMARY EXAMINER**

## **DETAILED ACTION**

### ***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Information Disclosure Statement***

2. The prior art documents submitted by applicant in the Information Disclosure Statement filed on 06/09/05, have all been considered and made of record (note the attached copy of form PTO-1449).

### ***Drawings***

3. The drawings, filed on June 9, 2005, are accepted.

### ***Specification***

4. Applicants' cooperation is requested in correcting any errors of which applicants may become aware in the specification.

### ***Allowable Subject Matter***

5. Claims 1-12 are allowed.
6. The following is an examiner's statement of reasons for allowance:

The prior art of record fails to disclose or reasonably suggest an all-fiber, all-states of polarization, linear design depolarizer for depolarizing a light source, which comprises a first polarization combiner with two inputs and two outputs; a directional coupler connected to the first polarization combiner by two branches extending from the outputs of the first polarization combiner, one of the branches between the coupler and the first polarization combiner having means adapted to produce an optical phase delay and each of the two branches having a polarization rotator means adapted to make the polarization in the two branches parallel and aligned with one eigen axis of the first polarization combiner and a second polarization combiner following the coupler and connected by two branches to the coupler, one of the branches between the coupler and the second polarization combiner having means adapted to produce an optical phase delay and also having a polarization rotator means adapted to maintain a half wave length in combination with the other limitations of claim 1.

Claims 2-9 depend from claim 1.

The prior art of record also fails to disclose or reasonably suggest a method of producing an all-fiber, all-states of polarization, linear design depolarizer comprising the steps of connecting a directional coupler and a polarization combiner by two branches, using power measurement with a given linear state of polarization at the input of the coupler; providing in one of the branches between the coupler and the polarization combiner an optical phase delay and a polarization rotator means and adjusting the polarization rotator means so that maximal power is detected at the output of the polarization combiner; and connecting by two branches another polarization combiner at

the opposite side of the coupler and providing in one of the branches between the polarization combiner and the coupler an optical phase delay and also providing a polarization rotator means in each branch to make the polarization in the two branches parallel and aligned with one eigen axis of the polarization combiner in combination with the other limitations of claim 10.

Claims 11 and 12 depend from claim 10.

7. The prior art cited on attached form PTO-892 and in the Information Disclosure Statement is the most relevant prior art known. However, the invention of claims 1-12 distinguishes over the prior art of record for the following reasons:

Fidric et al. (EP 1241499) (cited in the IDS) disclose a laser with depolariser having a polarization splitter connected to the 3dB coupler by two branches to provide a dual output, wherein one of the branches includes a phase decorrelator. However, Fidric et al. do not specifically disclose each of the two branches having a polarization rotator means adapted to make the polarization in the two branches parallel and aligned with one eigen axis of the first polarization combiner and a second polarization combiner following the coupler and connected by two branches to the coupler, one of the branches between the coupler and the second polarization combiner having means adapted to produce an optical phase delay and also having a polarization rotator means.

Taga et al. (EP 0570151) (cited in the IDS) disclose a signal light transmitter that can realize a stable signal reception by eliminating light signal power fluctuations due to the polarization dependency of optical amplifiers. However, Taga et al. fail to disclose a

method and an apparatus of an all-fiber, all-states of polarization, linear design depolarizer for depolarizing a light source with all the limitations as defined above.

Gonthier et al. (U.S. 6,760,495) (cited in form PTO-892) disclose an all-fiber optical depolarizer having a beam splitter combined with a loop made of non-birefringent fiber through which one of the polarizations split by the beam splitter circulates. The loop has a length greater than the coherence length of the light source. However, Gonthier et al. do not disclose a method and an apparatus of an all-fiber, all-states of polarization, linear design depolarizer for depolarizing a light source with all the limitations as defined above.

Shen (U.S. 6,205,262) (cited in form PTO-892) discloses an optical depolarizer for depolarizing light, where light is depolarized by splitting the beam into an output beam and a recirculation beam. However, Shen does not specifically disclose a method and an apparatus of an all-fiber, all-states of polarization, linear design depolarizer for depolarizing a light source with all the limitations as defined above.

Therefore, there is no reason or motivation for one of ordinary skill in the art to use the prior art of record to make the invention of claims 1-12.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

**Conclusion**

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer Doan whose telephone number is (571) 272-2346. The examiner can normally be reached on Monday to Thursday from 6:00am to 3:30pm, second Friday off.
9. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (571) 272-2344. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.
10. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JD

November 27, 2006

  
JENNIFER DOAN  
PRIMARY EXAMINER